

Amendments to the Drawings:

Attached are replacement sheets for FIGS. 51-72B which were taken from the text in the detailed description for the originally filed patent application. No new matter has been added by way of these amendments.

REMARKS

Applicants have amended the specification and submitted replacement drawings for FIGS. 51-72B. No new matter has been added by way of these amendments. Applicants have amended claims 1, 2, 10, 11, 14, 15, 23, 24, and 27-39 and have added new claims 40-56. Applicants note with appreciation the Office's indication that claims 1-39 are allowable over the prior art of record. In view of the above amendments and the following remarks, reconsideration of the outstanding office action is respectfully requested.

The Office has rejected claims 1-39 under 35 U.S.C. 101 asserting the claimed invention does not recite a useful, tangible, and concrete result and has rejected claims 1-13 under 35 U.S.C. 101 asserting claim 1 is directed to a mathematical algorithm, which is an abstract idea. The Office asserts the independent claims recite the output of "producing a model" which is simply a mathematical construct and therefore is not tangible. Additionally, the Office finds that the claimed result is so broadly phrased that it is not useful because it is not sufficiently specific to be applied for a practical use.

Applicants strongly traverse the Office's assertion that the output of producing a model based on the selections and inputs as set forth in the amended claims above does not provide a useful, tangible, and concrete result. The Office's attention is respectfully directed to FIG. 3 in the above-identified patent application which provides an example of a screen shot of the selection of application modes for systems and to FIG. 4 in the above-identified patent application which provides an example of the input of physical properties for the selected application modes, e.g. a density of 8930, a heat capacity of 340 degrees Centigrade, and a coefficient of heat conduction of 384. Based on these particular input physical properties, a practical model of the selected systems in the apparatus is produced which is clearly is a useful, tangible, and concrete result and is not merely a mathematical algorithm. With this result, an engineer, scientist, or other operator is provided with a specific analysis of the selected system or systems in the apparatus based on the received inputs for a particular project.

A few examples of these models are discussed in the above-identified patent application. For example, beginning on page 67 of the originally filed patent application, the Office's attention is respectfully directed to an example of the present invention for producing a model of transmission signals with frequencies in the microwave range transmitted through a waveguide with a rectangular cross-section which is used in the

telecom industry. Additionally, beginning on page 127 of the originally filed patent application the Office's attention is respectfully directed to another example of the present invention for the production of a model of mass and energy transport in a packed bed reactor. Further, beginning on page 137 of the originally filed patent application the Office's attention is respectfully directed to another example of the present invention for the production of a model of the magnetic field in a magnetic brake. Accordingly, the claims clearly define an output which is useful, tangible and concrete and is not merely a mathematical algorithm. In view of the foregoing amendments and remarks, the Office is respectfully requested to reconsider and withdraw these rejections.

The Office has rejected claims 1-39 are rejected under 35 U.S.C. 112, second paragraph, asserting the term "system" is used in the claims to refer to three different concepts: (1) a set of equations (see claim 1: "partial differential equation system"); (2) physical phenomena or physical apparatuses (see claim 1: "a model of a combination of systems") and (3) the claimed invention (see claim 27: "A system for producing ...". The Office asserts "system" is therefore vague and indefinite, so the claims are therefore vague and indefinite. Applicants have amended the claims as set forth above to define the partial differential equation systems as sets of one or more partial differential equations and also have amended claim 27 to recite that the claimed system is an apparatus for producing a model to distinguish from the systems being modeled. Accordingly, in view of these amendments and remarks, the Office is respectfully requested to reconsider and withdraw this rejection.

In view of all of the foregoing, Applicants submit that this case is in condition for allowance and such allowance is earnestly solicited.

Respectfully submitted,

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